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COST OF CONSTRUCTION AND CAPITAL INVESTMENT IN SELECTED PLANTS OF THE SOVIET AIRCRAFT INDUSTRY: ROSTOV AIRFRAME PLANT NO. 168

CIA/RR EP SC 65-17

(ORR Project No. 33.4692B)

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FOREWORD

This publication is an engineering estimate of the cost of replacement of Rostov Airframe Plant No. 168 and is one of a series of cost estimates of aircraft facilities. It is intended for use as one basis of industrial and production analysis. In establishing the cost of replacement, a construction/capital-investment ratio common to construction costs was used in all computations.

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COST OF CONSTRUCTION AND CAPITAL INVESTMENT IN SELECTED PLANTS OF THE SOVIET AIRCRAFT INDUSTRY: ROSTOV AIRFRAME PLANT NO. 168*

Summary and Conclusions

The total cost of construction of Rostov Airframe Plant No. 168 is estimated to be US $23 million, or 13 million rubles.** Based on the estimated relationship between the cost of construction and total fixed capital assets for this industry,*** total capital investment (which includes cost of construction) at this plant is estimated to be US $52 million, or 29 million rubles.

This facility is not one of the largest Soviet airframe plants; however, over the last 10 years the floorspace has doubled. At present, construction activity is in the form of a new unidentified building and the hard surfacing of a runway in the adjacent airfield serving as a test and fly-away field for the plant.

* The estimates and conclusions in this publication represent the best judgment of this Office as of 15 July 1965.

** Throughout this publication, dollar values are given in 1963 US dollars, and ruble values are given in new rubles expressed in 1955 prices. Dollar values in 1963 prices have been deflated to 1955 prices by multiplying 1963 prices by a factor of 0.792, and then converted to new rubles in 1955 prices at the 1955 ruble-dollar ratio of 0.71 ruble to US $1 for all industrial construction. The factor for the direct conversion of 1963 dollars to 1955 rubles is 0.562.

*** For a detailed methodology, see source 1/. (For serially numbered source references, see the Appendix.)

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I. Introduction

Rostov Airframe Plant No. 168 is located in the northern suburbs of Rostov on the site of former Rostov Airframe Plant No. 458. The plant is adjacent and immediately to the southwest of Rostov Airfield North and is served by both rail and road. The area occupied by the airfield and plant is about 723 acres, with the plant proper using approximately 17 percent of the total acreage.

25X1D

Partially evacuated in 1941, it resumed production in 1943, and reliable observers reported new construction in 1954, 1956, and 1957. 2/ [redacted] the addition of a workshop/machine shop in the period between 1962 and June 1963. At present there is evidence of the construction of an unidentified building in the southeastern section of the airfield, as well as of the hard surfacing of a runway. 3/

The plant layout and the identification of the major buildings, by type, used as a basis of estimating construction costs in this publication are shown in the chart.* The share of the total building cost found to apply to the different types of buildings is shown in the following tabulation:

Type of Building	Percentage Share of Total Cost of Buildings
Engineering/administration	5
Forge/foundry	4
Machine/workshop	29
Assembly	52
Storage	3
Miscellaneous/unidentified	7
Total	100

25X1D

25X1D

Distribution of cost of construction, as allocated over time, is on the basis of [redacted] published reports. 4/

[redacted]

II. Methodology

A. General

Construction costs in this publication are based principally on 1963 unit costs prevailing in an area of the US having climatic conditions analogous to Rostov.

B. Climatic and Soil Data 5/

The climate of Rostov is roughly similar to that of Pocatello, Idaho, being characterized by low precipitation, hot summers, and moderately cold winters with frequent thaws and light snow cover.

Plant No. 168 is located on a relatively flat site about 130 feet above the water level of the Don River, which is approximately 2.2 nautical miles to the south. Foundation conditions for installations having foundations below the level of frost penetration (absolute maximum of four feet) are considered to range from fair to good.

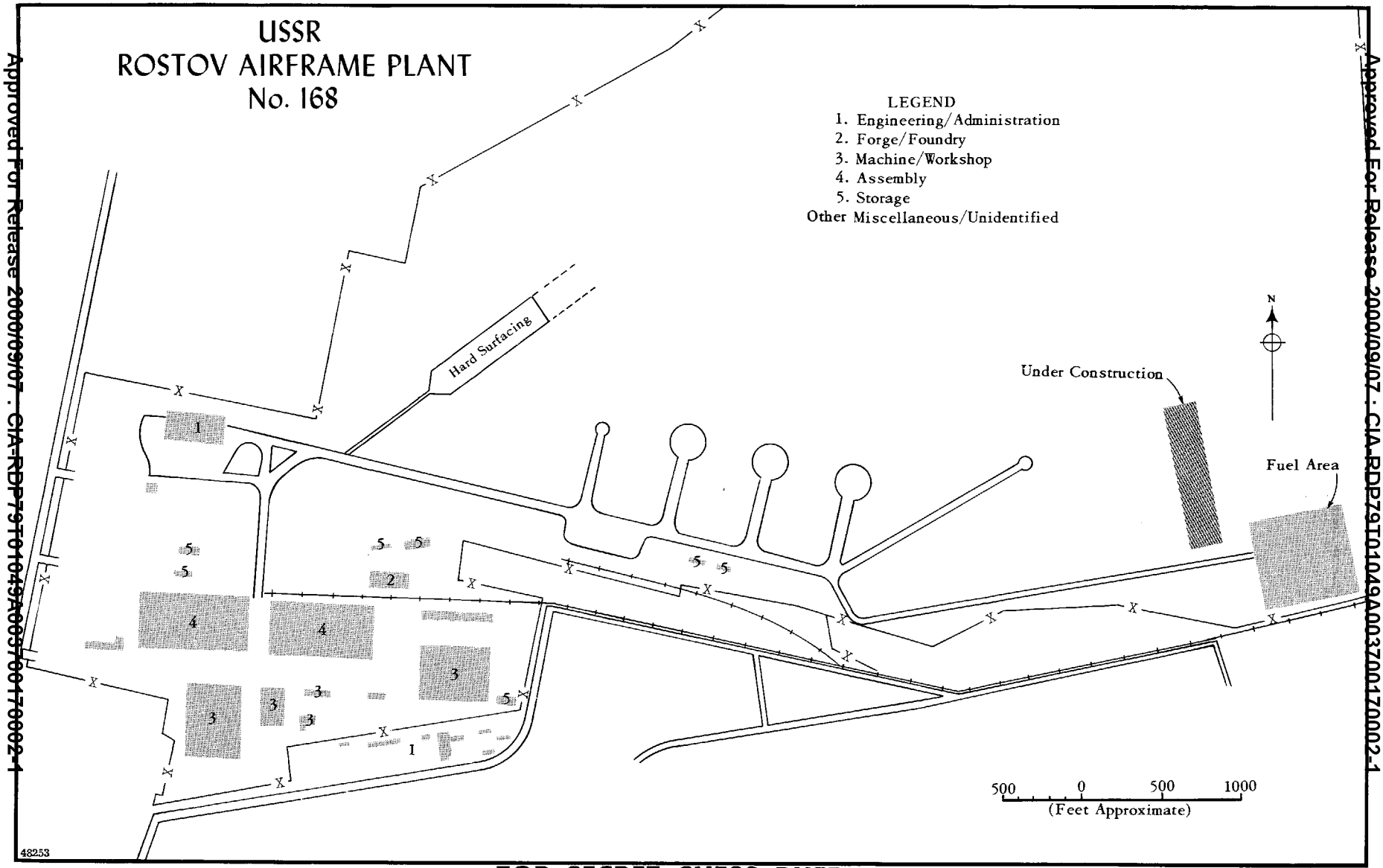
C. Cost of Construction and Capital Investment

The cost of construction of those items in the category of building construction have been estimated on the basis of the volumetric unit cost for the particular types of structures. Heavy construction costs are estimated on the basis of plant size, work force, construction season, and foundation conditions.

Capital investment was determined from the total cost of construction for each period of time. The amount of construction work as a share of fixed capital assets is known for a number of Soviet industries as of 1 January 1956. The share of construction in fixed capital assets used in this publication is the same as that of the Soviet automobile industry,* or 44.7 percent. 6/ Capital investment and cost of construction, distributed over time, are shown in the table.

* Data are not available on the ratio of the cost of construction to fixed capital assets for the Soviet aviation industry. Of the data available, those relating to the automobile industry are estimated to be most applicable. Although the reported figure of 44.7 percent has been used, it should not be construed to mean that the figure is accurate to a tenth of a percent.

USSR
ROSTOV AIRFRAME PLANT
No. 168



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USSR: Capital Investment and Cost of Construction of Rostov Airframe Plant No. 168 a/
Pre-May 1942 - February 1965

	Thousand 1963 US $			Total	
	Pre-May 1942	May 1942 - April 1962	May 1962 - February 1965	Thousand 1963 US $	Thousand New Rubles b/
Capital investment c/	34,304	11,295	6,336	51,935	29,187
Of which:					
Construction	15,334	5,049	2,832	23,215	13,047
Buildings	14,199	4,625	2,800	21,624	12,153
Engineering/administration	1,011	147		1,158	651
Forge/foundry	846			846	475
Machine/workshop	3,213	159	2,800	6,172	3,469
Assembly	7,665	3,484		11,149	6,266
Storage		686		686	386
Miscellaneous/unidentified	1,464	149		1,613	907
Heavy	1,135	424	32	1,591	894

a. For purposes of estimation and comparison, the data shown here have not been rounded. The data, however, are believed to be accurate as to general magnitude. Excluding cost of the unidentified structure noted as "under construction" in the plant layout.
b. Expressed in 1955 prices.
c. Derived from costs of construction.

III. Limitations

Available data do not warrant or allow the precise cost estimate that is inherent to competitive industry in the US. Assumptions, the validity of which cannot be checked, have been made on the basis of experience. The measurements used for the determination of building volume are considered to be the most complete to date; however, data on facilities normally built by heavy construction forces are scarce. On the basis of a belief that errors in the assumptions will tend to balance out, the probable range of error of plus or minus 25 percent has been estimated.

APPENDIX

SOURCE REFERENCES

1. CIA. CIA/RR EP SC 64-16, Cost of Construction and Capital Investment in the Dnepropetrovsk Missile Development and Production Center, 30 Oct 64, p. 8-11. TS CHESS RUFF/NO FOREIGN DISSEM. 25X1D
2. CIA. OCR/FIB Summary Sheet 7002811, 19 Apr 60. S.
3. [redacted] 25X1D
4. CIA. CIA/PID IB-110/65, Dimensions of Rostov Airframe Plant No. 168, USSR, 29 Apr 65. TS RUFF.
5. CIA. CIA/BI GB 65-33, Climate and Soil Data on Rostov, USSR, Jul 65. S.
6. CIA. CIA/RR EP SC 64-16 (1, above).